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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,763	12/26/2001	Atsushi Watakabe	217752US0	1659

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

DOVE, TRACY MAE

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/025,763

Applicant(s)

WATAKABE ET AL.

Examiner

Tracy Dove

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-23 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

This Office Action is in response to the communication filed on 3/22/04.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-12, drawn to a solid polymer electrolyte, classified in class 429, subclass 30.
- II. Claims 13-15, drawn to a liquid composition, classified in class 429, subclass 46.
- III. Claims 16-18, drawn to a solid polymer electrolyte fuel cell, classified in class 429, subclass 42.
- IV. Claim 19-22, drawn to a fluoropolymer, classified in class 525, subclass 276.
- V. Claim 23, drawn to a solid polymer electrolyte membrane, classified in class 429, subclass 30.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II or III or IV or V are related as combination and subcombination.

Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombinations as claimed because Group I requires a fluoromonomer B of the formula $\text{CF}_2=\text{CF}(\text{R}^f)_j\text{SO}_2\text{X}$, which is not required by the remaining groups. The subcombination has separate utility such as fluoropolymer may be used as a binder material.

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Inventions II and III or IV or V are related as combination and subcombination.

Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because Group II requires a liquid composition wherein a fluoromonomer B' is dissolved or dispersed in an organic solvent, which is not required by the remaining groups. The subcombination has separate utility such as the liquid composition can be used as a gel electrolyte material.

Inventions III and IV or V are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because Group III requires the fluoropolymer (copolymer) be contained in the cathode, which is not required by the remaining groups. The subcombination has separate utility such as the solid polymer electrolyte may be used as the solid polymer electrolyte membrane (between the anode and cathode of a fuel cell).

Inventions IV and V are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant

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case, the combination as claimed does not require the particulars of the subcombination as claimed because Group IV requires a fluoropolymer having a repeating unit of formula (I), which is not required by the remaining groups. The subcombination has separate utility such as a fluoropolymer may be used as a binder material.

Regarding Group I, this application contains claims directed to the following patentably distinct species of the claimed invention: the claims contain distinct species for fluoromonomer B:

1. Formula (1) wherein X is fluorine;
2. Formula (1) wherein X is chlorine;
3. Formula (1) wherein X is OM
4. Formula (1) wherein SO_2X is SO_3H ;
5. Formula (2) wherein X is fluorine;
6. Formula (2) wherein X is chlorine;
7. Formula (2) wherein X is OM
8. Formula (2) wherein SO_2X is SO_3H ;
9. Formula (6) wherein X is fluorine;
10. Formula (6) wherein X is chlorine; and,
11. Formula (6) wherein X is OM

The claims contain distinct species for fluoromonomer A:

1. Formula (3);
2. Formula (4);
3. Formula (5);

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4. perfluoro (3-butenyl vinyl ether);
5. perfluoro (2,2-dimethyl-1, 3-dioxole);
6. perfluoro (1,3-dioxole);
7. 2,2,4-trifluoro-5-trifluoromethoxy-1,3-dioxole; and,
8. perfluoro (2-methylene-4-methyl-1,3-dioxolane).

Regarding Group II, this application contains claims directed to the following patentably distinct species of the claimed invention: the claims contain distinct species for fluoromonomer B':

1. Formula (1') wherein M is a hydrogen atom;
2. Formula (1') wherein M is an alkali metal atom;
3. Formula (1') wherein M is a group of $\text{NR}^1\text{R}^2\text{R}^3\text{R}^4$;
4. Formula (2') wherein M is a hydrogen atom;
5. Formula (2') wherein M is an alkali metal atom;
6. Formula (2') wherein M is a group of $\text{NR}^1\text{R}^2\text{R}^3\text{R}^4$;
7. Formula (6') wherein M is a hydrogen atom;
8. Formula (6') wherein M is an alkali metal atom; and,
9. Formula (6') wherein M is a group of $\text{NR}^1\text{R}^2\text{R}^3\text{R}^4$.

The claims contain distinct species for fluoromonomer A:

1. Formula (3);
2. Formula (4);
3. Formula (5);
4. perfluoro (3-butenyl vinyl ether);

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5. perfluoro (2,2-dimethyl-1, 3-dioxole);
6. perfluoro (1,3-dioxole);
7. 2,2,4-trifluoro-5-trifluoromethoxy-1,3-dioxole; and,
8. perfluoro (2-methylene-4-methyl-1,3-dioxolane).

Regarding Group III, this application contains claims directed to the following patentably distinct species of the claimed invention: the claims contain distinct species for fluoromonomer B':

1. Formula (1'');
2. Formula (2'');
3. Formula (6'').

The claims contain distinct species for fluoromonomer A:

1. Formula (3);
2. Formula (4);
3. Formula (5);
4. perfluoro (3-butenyl vinyl ether);
5. perfluoro (2,2-dimethyl-1, 3-dioxole);
6. perfluoro (1,3-dioxole);
7. 2,2,4-trifluoro-5-trifluoromethoxy-1,3-dioxole; and,
8. perfluoro (2-methylene-4-methyl-1,3-dioxolane).

Regarding Group IV, this application contains claims directed to the following patentably distinct species of the claimed invention: the claims contain distinct species for fluoropolymer:

1. Formula (I) and Formula (II) wherein M is a hydrogen atom;

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2. Formula (I) and Formula (II) wherein M is an alkali metal atom;
3. Formula (I) and Formula (II) wherein M is a group $\text{NR}^1\text{R}^2\text{R}^3\text{R}^4$;
4. perfluoro (3-butenyl vinyl ether) and Formula (II) wherein M is a hydrogen atom;
5. perfluoro (3-butenyl vinyl ether) and Formula (II) wherein M is an alkali metal atom;
6. perfluoro (3-butenyl vinyl ether) and Formula (II) wherein M is a group $\text{NR}^1\text{R}^2\text{R}^3\text{R}^4$;
7. perfluoro (2-methylene-4-methyl-1,3-dioxolane) and Formula (II) wherein M is a hydrogen atom;
8. perfluoro (2-methylene-4-methyl-1,3-dioxolane) and Formula (II) wherein M is an alkali metal atom;
9. perfluoro (2-methylene-4-methyl-1,3-dioxolane) and Formula (II) wherein M is a group $\text{NR}^1\text{R}^2\text{R}^3\text{R}^4$;
10. Formula (I), Formula (II) wherein M is a hydrogen atom and tetrafluoroethylene;
11. Formula (I), Formula (II) wherein M is an alkali metal atom and tetrafluoroethylene; and,
12. Formula (I), Formula (II) wherein M is a group $\text{NR}^1\text{R}^2\text{R}^3\text{R}^4$ and tetrafluoroethylene.

Regarding Group V, this application contains claims directed to the following patentably distinct species of the claimed invention: the claims contain distinct species for fluoropolymer:

1. Formula (I), Formula (II) wherein M is a hydrogen atom and tetrafluoroethylene;
2. Formula (I), Formula (II) wherein M is an alkali metal atom and tetrafluoroethylene; and,
3. Formula (I), Formula (II) wherein M is a group $\text{NR}^1\text{R}^2\text{R}^3\text{R}^4$ and tetrafluoroethylene.

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Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, there is no generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

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Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II-V, restriction for examination purposes as indicated is proper.

A telephone call was made to Applicant on 5/25/04 to request an oral election to the above restriction requirement, but did not result in an election being made. Applicant requested a second written restriction.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Applicant's previous election with traverse of Group I, claims 1-12, is acknowledged. Examiner agrees with Applicant that Groups IV-VI of the election mailed 2/27/04 should be combined.

The traversal is on the ground(s) that the Examiner has provided no reasons in support of her belief that the liquid composition of Group II may be used as a binder material. This is not found persuasive because the liquid composition may not be used as a binder material because it is a liquid. The Examiner stated the fluoropolymer of Group I may be used as a binder.

Therefore, Group I and at least Group II have separate utility. The instant specification recites the solid polymer electrolyte material functions also as a binder (page 38).

Applicant further argues the Examiner has provided no reasons in support of her belief that the solid polymer fuel cell of Group III can be used as a gel electrolyte material. Examiner never stated a fuel cell can be used as a gel electrolyte material. The liquid composition may function as a gel electrolyte while a fuel cell cannot function as a gel electrolyte. Therefore, Group II and at least Group III have separate utility.

Applicant further argues the Examiner has provided no reasons in support of her belief that the fluoropolymer of Group IV may be used as a membrane. The fluoropolymer of Group IV may be used as a membrane while the fluoropolymer of Group III cannot function as a membrane because it is contained in the cathode. The instant specification states the solid polymer electrolyte material may be contained in the electrode or a polymer electrolyte membrane may be formed from the solid polymer electrolyte material (page 11). Therefore, Group III and at least Group IV have separate utility.

Applicant further argues the Examiner has provided no reasons in support of her belief that the solid polymer electrolyte of Group IV can be used as a binder. The solid polymer electrolyte of Group IV can be used as a binder, but the solid polymer electrolyte of Group V is contained in the membrane. Therefore, Group IV and at least Group V have separate utility.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday-Thursday (9:00-7:30).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Tracy Dove', with a stylized, flowing script.

Tracy Dove
Patent Examiner
Technology Center 1700
Art Unit 1745

May 28, 2004